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Researching climate crisis and energy transitions: Some issues for ethnography

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A B S T R A C T

It is often argued that there is a sharp disjuncture between the abstracted prospect of large-scale climate crisis and direct experience on the ground. Ethnographers investigate experiences, so how are we to research climate crisis? The anticipated crisis is unknowable in its depth and reach; the everyday experience of consumer capitalism confines horizons to infinite accumulation and 'growth'. Here, ethnography has potential as an interpretative tool to highlight ways in which the crisis and proposed energy transitions are encountered. Various forms of 'climate ethnography' explore this nexus between climate science and on-the-ground contexts where climate change is experienced, where policy is being developed or applied, or where institutional and political formations are seeking traction. The article surveys this emerging field, paying particular attention to studies relevant to energy and climate research. It especially reflects on definitions of climate ethnography as 'ethnography with a mission', debating the effort to advance normative agendas and develop research insights that can help gain a stronger purchase on the widening crisis.

1. Introduction, and approach

The world is living through a sharp and growing disjuncture between climate science and everyday life. The conflict between the prospect of a profoundly transformed climate and the persistence of everyday priorities, especially in relation to energy policy, is fast becoming the defining characteristic of our age. Bridging that conflict, and overcoming the disjuncture, has become the key and growing priority for the Twenty-First Century. The task requires a wholesale transformation in structures of meaning, and this is first and foremost is a cultural task. Here, ethnography, as literally the study of how meaning is created, should have much to offer [26]. This article surveys some recent initiatives in the use of ethnography for investigating climate change and energy, as a means of understanding and overcoming the current disjunctures.

At one level the political challenge for climate and energy policy is a phenomelogical one. Climate change is by definition abstracted from everyday experience – it is underway and having many direct effects, but it is hard to link causes and effects. Ordinarily, for instance, weather changes on a daily basis, driven by a wide variety of factors. The societal drivers of climate change are global in scope, and historical in their logic, and projected far into the future in terms of their trajectory. The causes of climate change are socio-political but responsibility is mediated by irresistible biophysical forces, distanced from the realm of experience. Climate science, as the carrier of climate knowledge, asserts universal 'anthropogenic' drivers. The IPCC links anthropogenic emissions and changes in the weather with a 'high level of confidence', based on evidence and scientific agreement [1], but the experience of these changes is diffuse. Climate change itself is predicted to bring disruption to the experienced everyday life, but it is hard to even imagine the nature of those transformations.

In this context, the IPCC articulates the necessity to act on climate change an imperative for humanity, above politics. The abstracted assertion of biophysical necessity is far removed from the dirty socio-political reality of radical unevenness, of responsibility and impacts, and the resolute resistance from power holders to actually achieving the required transformations. Notions of a crisis for humanity-in-general, for the 'species' as Chakrabarty characterizes it, are correct, but only at the most abstracted level [2]. The assertion of climate policy as a 'post-political' planetary absolute undermines the capacity to act, not least as the invoked urgency, or emergency, enables a power grab by those seeking to maintain and extend their privileges [3]. Whilst asserting universality, the IPCC is intergovernmental, and is a political body shaped by the interests of the governments that make it up. Claim-making centred on 'anthropocene' discourse only serves to displace political contention to 'humanity-in-general', away from the chief culprits who have most to lose from an ethically-grounded climate politics [67]. Instead of climate action we are offered a 'shock doctrine' that enables yet more forceful application of non-solutions to serve dominant interests (emissions trading being the case in point) (see Ref. [4]).

The climate conundrum, and climate praxis, then centres on how to overcome abstraction, by materialising the crisis experientially, through on-the-ground socialisation. Much climate agency, in terms of a capacity to act on climate change, aims in this way to reveal climate

change, materialising the abstraction, and creating both an experiential and ontological engagement, invoking 'the political'. The process of climate change creates an inter-linked fossil fuel commodity chain of lived places and sites. From the contexts of fossil fuel extraction and dependency, to the places experiencing climate change impacts, to the objects of policy-making, especially energy policy, and those seeking to construct or capture such policy, there are numerous sites for enabling an embedded climate politics.

The task of politicizing this commodity chain, and thus socialising climate change, has been underway for some time. This is reflected especially in climate justice movements from the mid-2000's and their later initiatives following the failure of the global climate regime in 2009. Rejecting abstracted carbon management and related climate summitry, these movements have sought to create a swarm of materialized and embodied contestation against the injustices of climate policy. The agenda has come into focus in the first instance in struggles against 'unburnable fuels', and latterly for advancing socialised renewables, along with a stronger focus on politicizing climate change impacts, beyond adaptation claims [5]. Here the social movement becomes a key agent for climate politicisation, in a new political dialectic that 'climatises' society [6].

This article discusses the contribution of ethnography to this process. My own work, in collaboration with others, has centred on using ethnography to explore the conundrum of materialising climate change. The first effort centred on researching climate activists involved in direct-action protests against fossil fuel industries, in a longitudinal study, 2007–2009, that led to an extended reflection on their experiences, perspectives and strategies [7]. A second initiative addressed the question of why new coal mines are approved, and how they are contested under advancing climate change. This involved comparative ethnographic study over four years, focused on three proposed coal mines and mine extensions in India, Germany and Australia, and led to a radio documentary and a Special Issue in *Energy Policy,* and promises a forthcoming book (see Refs. [8–10]). Third, we are deploying ethnography to investigate the social legitimacy of renewable energy, with region-level studies, again in India, Germany and Australia [11]. Across these projects, from issues of climate protest, to coal phase-out and now the question of renewables, ethnography has proved to be an invaluable tool to investigate the materialisation of climate, or 'climatization'.

Informed by these research initiatives, this article elaborates on the methodological themes, reflecting on how ethnography has developed a specific set of tools to address questions of energy and climate change. In Section 2 the theoretical framing is further delineated, leading to a discussion of prevailing themes in 'climate ethnography'. In Section 3 the tendency for ethnography to centre on local communities is outlined, and its preoccupation with a model of impact and response is debated. Sections 4 and 5 discuss the possibilities of building on and reaching beyond this approach in terms of emergent sites in the carbon cycle, and strategies to address it. This leads to a wider debate in Section 6 about ethnography's potential contribution to more holistic and expansive research agendas in energy and climate change.

2. Background: society and climate change

Climate crisis needs to be understood dialectically, as being produced by contradictions internal to the prevailing society. In this sense it is named as a crisis, not a disaster. The rapid acceleration of greenhouse gas emissions in recent years is driven by the model of capitalist industrialisation, and in particular by the drive for low-cost energy. In this respect it is wildly inaccurate to describe the emergent era as an 'anthropocene' (and not unlike describing colonialism as civilisation). In fact, as Jason Moore and others have argued, the current crisis is much more accurately a product of global capitalist relations and associated accumulation, and hence should be termed (in an appropriately clumsy neologism) the 'capitalocene' (see Ref. [12]). From this more historicised perspective, it is not human agency that is dictating

planetary geology, but capitalist accumulation (and not just in relation to greenhouse gas emissions). It is society, not humanity, that produces climate change, and this means capitalism, whether under American neo-liberalism or Chinese market-socialism.

The disruption of the planet's carbon cycle, as greenhouse gas emissions overwhelm the regenerative capacity of global carbon sinks, is centred on the appropriation of fossil fuels for energy. Appropriation has a specific meaning in this context, as the process of state-sanctioned capitalisation, extraction, commodification, combustion and energy consumption, captures fossilized organic carbon as the 'fee gift' of nature. Renewable energy centres on non-extractivist 'gifts', in the form of water flow, solar, wind and geothermal heat, and entails quite different social relations, whether or not under capitalism [13]. Capitalist extractivism drives climate change: its beneficiaries, in terms of the world's fossil fuel companies, are also the key barrier to overcoming it. The Governor of the Bank of England estimates that fossil fuel-intensive corporates – mining companies, power utilities, chemicals, construction and industrial goods manufacturers – now account for 'one third of global equity and fixed income assets' ([14]: 11). No surprise there is some considerable institutional resistance to the 'transition' (requiring usurpation).

Driven by appropriation, climate change is best understood as a form of negative climate agency. It produces a form of 'negative value' as Moore defines it, bound into an asocial bio-physical process. These contexts condition efforts to move from 'inadvertent' to 'purposeful' agency, as Hulme puts it ([15]: 1). Hence the struggle to move beyond climate disruption has both social and bio-physical imperatives. The social context is the fulcrum – as it is only from social commitment that 'purposeful' climate agency arises. Here we are presented with the central conundrum, as noted, that climate is abstracted, but agency is concrete and material. Historically, the capacity to act on (and for) society, to dialectically exercise historical agency, hinges on experience, and there is no reason to believe this has changed under climate change.

In this context forms of ethnography that are specifically directed at exploring the social meaning of climate change can be highly revealing, but are also themselves forced to confront the question of social salience. As it is unprecedented, climate change is logically unknowable, and hence, in its entirety, beyond experience. As Chakrabarty argues, there is a vast gulf between the narratives of human historical experience and the geological history of climate science. In this context, social agency to address the crisis falls at the first hurdle, as he outlines: 'We may not experience ourselves as a geological agent, but we appear to have become one at the level of the species. And without that knowledge that defies historical understanding there is no making sense of the current crisis that affects us all' ([2]: 211). Given this, how may the required process of 'making sense' emerge? The divide that Chakrabarty constructs is unbridgeable through discourse. He argues it requires an existential shock to create the required reconciliation into a 'new universal history of humans that flashes up in the moment of the danger that is climate change' ([2]: 222). Here, a 'shared sense of catastrophe' is invoked as the sole basis for hope: yet, as the basis for agency, to deliver the capacity to act as a society under the sway of capitalist climate, this is highly speculative.

Also in this vein Ulrich Beck argues for a method of 'metamorphosis', of holding together both negative and positive dynamics to highlight strategic possibilities, arguing 'it is only when the observer's perspective brings both processes together that new possibilities of action open up' ([16]: 78). Given its 'imperialistic structure', climate change is seen as mobilising new publics, bound into a common cause to challenge climate orders. In this respect, it has emancipatory as well as a catastrophic logic, hence Beck's appeal to 'emancipatory catastrophism'. He suggests this 'normative horizon of global justice' under climate change is emergent, requiring sustained critique paired with 'anthropological shock' to jolt the population into awareness, and 'provide a new way of being in the world, [of] seeing the world and

doing politics' ([16]: 80).

Both Beck and Chakrabarty vest hope in the experience of catastrophe: neither put faith in a process of a more iterative engagement. They anticipate a moment of post-political revelation, a 'lifting of the veil', where the shock of realisation ensures enough people find the will and capacity to heal the rift between society and climate. In this they distinguish between previous social crises, where the capacity to experience an emerging crisis generates a capacity to act, and climate crisis where the causes and effects remain far removed from everyday life, at least until some kind of shock makes them real. Certainly, the cumulative character and resulting fixed horizons of climate crisis contrast with other sorts of social crisis. But, as discussed, the process of materialising the abstract crisis, as an everyday stake in society and politics, has become more prevalent, across a widening range of social fields. Here we can point to growing politicisation of energy, both reflecting the failure to act effectively, and the growing salience of policy capture by fossil fuel interests. From this perspective, climate crisis produces an unfolding legitimation crisis, which forces the necessary solutions into view.

Such hopes for emergent climate agency rest on a dialectical reading of climate crisis that emphasises its generative social logic. Moore's concept of a 'climate dialectic', driving an unfolding transformation of political life, including new agendas for socialised energy, is especially useful [17]. His approach of historically-embedding the underling socio-ecological relations, from the earliest days of capitalist slavery and militarised mercantilism, is instructive. The historical trajectory of greenhouse gas emissions is a social trajectory embedded in the historical logic of accumulation, appropriated from nature and enforced labour. The contemporary moment, of climate crisis, calls into being that history, giving it traction into the present, to enable broader-scale transformation beyond the conditions of its own making. The past and the future are literally brought into dialogue, creating new imperatives and responsibilities. Here, the predicted political transformations, and resulting 'purposive' climate agency, do not hinge on the shock of 'catastrophe'. Rather, they arise from the process of strategic contestation over the causes and outcomes of climate change.

Ethnography is well-placed to deliver insights into these emerging socio-ecological relations of climate change, and into how they may develop into the future. Critical to this is a normative vision, and this entails a focus on dynamics for transformation rather than passive adaptation. Unmitigated climate change does not allow for an adapted future, and requires strategic contestation in the present, rather in some mooted catastrophic future. The possibilities for contestation lie in socio-ecological engagements across multiple social fields. As argued here, the strategic possibilities can be made visible, and accessible, in part through more engaged forms of 'climate ethnography'.

3. Ethnography and climate change – investigating an abstraction

Ethnographic research is best understood as a method of direct observation and participation in socio-cultural fields. Participation is balanced with detachment, often as an outsider or 'stranger', enabling reflection. The balancing act allows researchers to analyse patterned activity, develop insights into unwritten rules and assumptions, and attribute meaning and significance. In doing so, ethnographers can address the interpretations and meanings that influence how people engage in daily life: how people 'make sense' of the world and act in it. Throughout, sense-making is seen as integral to human society, where each of us exercises social agency, as defining our capacity to act in or on our world.

Hammersley and Atkinson's 1995 definition is perhaps clearest, defining ethnography as a method that:

'involves the ethnographer participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions - in fact,

collecting whatever data are available to throw light on the issues that are the focus of the research' (1995: 1)

Seeking to understand peoples perspectives is critical: with Espig and De Rijke (this Special Issue), ethnography is best understood as a way of 'making sense of the way people lead their lives in terms of the way they themselves see the world, things, and other people" ([18]: 34, as cited in Espig and De Rijke). Ethnography is most closely associated with the academic discipline of anthropology (and is often said to be the discipline's defining characteristic). As such, traditions of ethnography reflect traditions in anthropology, especially the historical emphasis on Western 'outsiders' researching non-Western societies, and its subsequent move beyond the 'non-Western other' to address many different contexts and situations in contemporary societies, from stock markets to sex trafficking.

From the mid-Twentieth Century ethnography was increasingly taken-up by other disciplines, especially sociology, and has since proliferated and been adapted, including across a wide swathe of interdisciplinary, thematic and applied contexts. At the same time, with the symbolic anthropology of Clifford Geetz, there was a renewed focus on everyday socio-cultural contexts via 'thick description'. The emphasis here was on understanding the particularities of social life, rather than asserting false universals, to 'bring us into touch with the lives of strangers', and thereby arrive at an understanding of how people 'make sense out of experience' ([19]: 16).

Subsequent developments have seen ethnographers wrestle with tensions between naturalism and constructivism, often charting more-or-less reflexive approaches. Hammersley and Atkinson illustrate how epistemological claims are made on the uncertain ground of interpretation and attributed significance. There may be a naturalistic faith in the ability to 'describe phenomena as they are, and not merely how we perceive them or how we would like them to be' ([20]: 18). Beyond this, there are attempts at constructing integrity by making assumptions explicit. This may involve prioritising 'foreshadowed problems' enabling strategic selection and interpretation of 'social settings' ([20]: 24,100). Here research questions may be embedded dialectically, as the outcome of engagement or may arise from normative, politicised or emancipatory approaches, where research is linked to outcomes or effects.

These more engaged approaches, aimed at delineating possibilities for agency, have come to the fore in debates about how to develop ethnography in the context of climate change. Increasingly, researchers are using ethnography to address the gulf between climate science and its global imperatives on the one hand, and the lived realities of consumer society and fossil fuel dependence on the other. Here a model of collaborative and even 'militant' ethnography can be mobilised, framed by Juris for instance, as a way to 'make a difference to the movements we work with' ([21]: 372). His model of ethnography as 'observant participation', a form of 'constructive criticism' is especially powerful in the context of the increasingly urgent politics of climate change (2013: 374). As discussed in the next section, in addressing climate change the normative drivers of research are often made more explicit, as part of a wider political project of decarbonisation.

More broadly, and very significant for shedding light on the 'foreshadowed problems' of climate change, ethnography has the capacity to address directly the issue of social and climate agency. It engages the socio-cultural imagination but it does so in an embedded way. Imagination is critical in the context of crisis, and especially so in the unprecedented context of climate crisis. In his famous assertion of the 'sociological imagination', C. Wright Mills argued that the role of sociology is to bridge daily 'troubles' and social 'issues', to gain a purchase on social change, and enable social agency [22]. Today, under climate change, constructing the socio-ecological imagination is at a premium (see Ref. [23]). This poses the central challenge (and opportunity) of creating a climate social imaginary: a way of imagining our social existence in order to apprehend and act-on the crisis. As argued by Beck,

this offers the first real opportunity with society-wide scope, to overcome the bifurcation of society-culture and 'nature', a process that he argues has already begun:

> Whether presenting climate change as a transformation of human authority over nature; as an issue of climate (in)justice; as concerning the rights of future generations; or as a matter of international politics and international trade; or even as an indication of suicidal capitalism – all this is about the dramatic power of the unintended, unseen emancipatory side effects of global risk, which already have altered our being in the world, seeing the world and imagining and doing politics. ([16]: 79)

4. Climate ethnography?

Writing in 2001, Magistro and Roncoli assessed anthropology's contribution to climate debates solely in terms of informing 'policy on human adaptation to climate change' ([24]: 95). Much has changed since then. In her 2011 review of engagement between anthropology and climate change, Susan Crate proposed a new category of 'climate ethnography', defined as 'ethnography with a mission' (as against a less normative environmental ethnography) [25]. This had a specific reflexive purpose, linked to the priority of addressing global climate change. For Crate, the focus was on using ethnography to investigate localities, but at the same time to bridge scales, collaborating with stakeholders and engaging across disciplines.

As discussed below, several observers have taken the normative agenda beyond locality studies, seeking insights into the socio-cultural process of engaging with climate change across a variety of policy and institutional settings. In large part though, the local context for climate impacts and adaptation remains a strong focus. Reflecting this, Roncoli et al argued in 2009 for a continued commitment to engaging with locality and climate change, stating that ethnography is most suited to investigating impacts, and how communities respond [26]. This approach reflects prevailing assumptions about how to define the 'human dimensions of climate change': a 2013 review of this field in the journal *Global Environmental Change,* for instance, proposed a focus on 'actual human practices and processes of adaptation, vulnerability and resilience to climate change as well as perceptions of climatic change/s' ([27]: 402). While inherently limited to adaptive responses, one benefit of such approaches can be to offer local means of articulating the threat of climate change, bringing climate science into the everyday cultural domain. Climate impacts may thereby be politicized, as drivers for more effective solutions, as well as interim and rolling adaptations.

In these local studies climate impacts can be brought to life through accounts of cultural experience, humanizing an otherwise baldly reductionist biophysical process. Along the way there may be a deepening of understanding what is at stake, especially of the cultural meaning of landscapes and practices. From this perspective, Indigenous perspectives on climate change, and on socio-ecological organization more generally, can be put into the foreground. Local accounts of impacts may emphasise the dislocations for communities instance in Alaska [28], that have contributed least to climate change yet bear its costs. Such accounts can acquire both symbolic and strategic power, for instance, as indigenous lands are most directly affected by climate change, and are simultaneously targeted for fossil fuel extraction, or as 'carbon sinks'.

The limits of a climate adaptation preoccupation, though, remain inherent and can replicate longstanding critiques and limitations of development policy. One multi-sited study for instance is centred on disaster management and flood prevention in Mozambique, confined to development practice [29]. Another account showed how the notion of adaptation is used to strengthen developmentalist power structures in Africa [30]. Cassidy further critiques studies of adaptation that explore impact and responses without addressing the causes and inequalities of climate change. Against this approach she identifies a set of contrasting

strategies aimed at 'expos[ing] these inequalities in order to change them and save the world' ([31]: 22). Her approach, though, translates into a demand that those displaced by climate change be 'compensated for their losses' (2012: 30), and hence ultimately puts faith in finance and adaptation rather than wider transformations.

Many observers, including Crate [25] have been highly critical of 'place-based' ethnographies of climate change, that report on localised impacts, adaptation or resilience. Crate stresses their failure to address the causes of climate change, its social drivers and challengers, or to reveal local-global connections. In Crate's approach, the local focus remains, but is rearticulated: most of the case studies carried in Crate and Nuttal's seminal 2009 collection for instance (issued as a second edition in 2016), *Anthropology and Climate Change,* are local-level studies, centred on impact, interpretation and adaptive action in the context of global change [32]. This approach develops the potential of place-based studies to make wider claims on climate politics and policy. As Peace at al comment, the local studies charted by Crate sought to mobilise the 'environmental justice' frame to replace a human adaptation model. Peace et al welcomed this but argued place-based accounts needed to go further, to address how people on the ground contest environmental degradation, and in the process are 'brought into being' as agents of change [33].

The shift to local contestation is significant as it responds to the wider problems of enacting climate politics. This more engaged approach can focus on how global climate scripts are received, what Rudiak-Gould called 'reception' studies [66]. Ethnographers are certainly exploring this theme. One prominent example is Norgaard's climate ethnography of a rural town in Norway, that is both experiencing climate change and is engaged with climate science, yet is unable to address the scale of the issue, remaining emotionally 'in denial' and politically paralysed [34]. The study emphasises parallels with other high-income contexts, exploring (if not solving) the foundations of a generalized disjuncture at the core of failing climate politics.

Reflecting this broad concern, a 2015 collection titled *Grounding Climate Change*, was focused on using ethnography to bridge climate science and the everyday to produce what the editors called 'social climate research' ([35]: 5). Provocatively, the editors (reflexively) questioned the legitimacy of researchers seeking to bridge divides between climate science and experienced realities, asking, 'does climate change "exist" for an ethnographer if people do not talk about it?'([35]: 4). The response is both 'yes' and 'no', as the answer depends on context and perspective. Barnes, for instance, argues that ethnography can address precisely this disjuncture, providing an 'holistic view' on the interacting levels of abstraction and materiality, where 'at larger spatial and temporal scales, the "fingerprint" of anthropogenic climate change is easy to identify' while at the smaller scale of everyday life, it is far more difficult to attribute events and trends to climate change, and project changes and their impacts' ([36]: 543). Here, ethnography can open doors to a more comprehensive account of climate agency and strategy. The more holistic scope, that articulates dimensions and encompassed causes, impacts and solutions, is crucial for creating an embedded climate politics, as a politics of struggle able to advance 'purposive' climate action.

In this context local ethnographic studies are increasingly revised, from within their own terms of reference, to focus on the social relations and drivers of climate change itself. Studies of the consequences of climate policy and aspirations to mitigation are qualitatively different from studies of impacts and adaptation, and have a very different set of political and policy engagements. One study of climate and indigenous peoples in the Arctic, for instance, deliberately rejects accounts of local tradition in favour of a focus on dynamics of carbon colonialism [37]. Another interesting example is a study of Pacific Islanders who refuse to comply with climate justice scripts of outrage and non-responsibility. Instead they are found to invoke universal responsibility and ethical 'self-blame', interpreted as an assertion of ethical agency and dignity against neo-colonial, though well-meaning, scripts of victimhood [38].

This speaks directly to the normative politics of climate change and hence to wider questions of gaining political traction.

The use of ethnography to engage with normative climate agendas, and thus with contestation, is crucial for a more engaged 'climate ethnography'. The shift and its implications have been a focus for US-based anthropologists, and has generated a productive debate that has much to offer other disciplines. The American Anthropological Association's 'Global Climate Change Task Force' was established in 2010 to investigate the contribution of anthropology to climate change debates. The taskforce had a focus on five areas: adaptation, including vulnerability and resilience; climate science and policy; consumerism and energy consumption; historical anthropological accounts; and cultural contexts 'that influence mitigation' (AAA 2011). It deliberated in a number of contexts, including in a final workshop organised around three 'core issues': first, the need to integrate accounts of 'human interactions with climate from the past with contemporary calls for climate policy'; second, the need to problematize adaptation, vulnerability and resilience; and third, the need to address issues of community engagement and agency.

The final report, released in 2014, had a strong focus on adaptation studies, leaving issues of policy, consumption, history and mitigation relatively underdeveloped. As a survey it demonstrated the extent to which ethnographers continue to rely on a functionalist 'socio-ecological systems' approach, and on the related preoccupations with community vulnerability, adaptability, and resilience [68]. The report is critical of adaptation models 'positioned far more to accommodate change rather than to challenge the causes and drivers' ([68]: 49), and it points to recent work 'on the ethics, practices, and policies/politics of transitioning to a low-carbon society' ([68]: 72). Ultimately though, the report embraces the focus on impacts and community adaptation, ending with the congratulatory statement, that 'anthropologists are working with communities as they develop capacity and agency to deal with climate change threats to their existence and livelihoods, promising new and more effective models of adaptation and resilience' ([68]: 72). As such, the Report shows how the normative project of climate ethnography is gaining ground, but also highlights that it has much further to run. Some of these possibilities are demonstrated in the field of 'transition' studies, and in the nexus between climate and energy policy.

5. Ethnographies of climate and energy policy

Beyond impacts, adaptation and cultural interpretation, ethnography has also shed light on how agency on climate issues is exercised, through policy in the industrial heartlands as well as in peripheral contexts, and amongst expert communities such a climate scientists, as well as wider publics. As Roncoli et al note, the global scale and encompassing logic of climate change is drawing ethnographers into multi-sited, institutionally-focused, advocacy-based, and network-focused approaches [26]. Reflecting this, Barnes et al emphasise a shift to linking local contexts with global forces, including climate policy fields, reflecting a trend that has been underway for some years in response to globalisation. There is a desire to investigate the social relations that drive climate change, that underpin climate science and policy, and correlate with social life, rather than to simply explore its localised impacts. Here ethnographers find new 'settings in developed countries and institutional centres of power, and diverse research subjects ranging from nongovernmental organizations to policymakers, scientists, international agencies and corporations' ([36]: 542).

There is certainly increasing interest in using ethnography to address the politics of climate change, including energy policy. The need to address 'causality' is increasingly recognised, including through studies of community-level advocacy and energy projects, along with institutional ethnographies of political, scientific and corporate bodies, and political contests over climate policy. In the first instance, there is exploration of climate change as a transnational field of knowledge, and

how it intersects with structures of meaning on the ground. Eriksen and Schober for instance focus on the 'clashing scales' of knowledge, that produce sharp contestations between expert-based and experiential knowledge, and between what they term 'knowledge by talking' and 'knowledge by doing' [39]. A 2014 collection on 'anticipating nature' also charted the scales of knowledge, bridging local communities struggling to predict changes to the weather with climate scientists seeking to verify their models as a foundation for policy [40].

There is also growing use of ethnography to understand energy transition. Within the local, community-focused tradition of ethnography there are a series of studies of energy transitions centred on communities dependent on fossil fuels, or engaged with renewable energy. There are ethnographies of fossil-fuel dependent communities and how they respond to climate change, for instance in the collection, 'Ending the Fossil Fuel Era' [41]. There are also in-depth ethnographies of coal communities, for instance Connor's study of coal in the Hunter Valley in Australia [42]. There are ethnographies of energy transition, including the 'Cultures of Energy' collection [43] and the Special Issue 'Exploring the Anthropology of Energy' published in *Energy Research & Social Science* in August 2017 [44]. There is also an increasing tendency for ethnographies of the 'here', rather than studies of distanced peripheral communities suffering from climate impacts. These include for instance ethnographic investigations of localised mitigation efforts, in collaboration with engineers [45], as well as accounts of wider public engagement. Himmelfarb et al, for instance, studied US public opinion on climate change, using ethnography to identify the motivations for differing stances in the climate debate [46]. Another study maps how diverse social groups, from science journalists, to evangelicals, to Indigenous leaders, seek to translate the imperatives of climate science into 'ethical and moral calls to action': in doing so, the text directly addressed the conundrum of socialising climate change, from science into a 'communal life of facts', to gain political traction [47].

Analysis of the role of electricity in development, from the first industrialisers, has been a central theme, from the work of White in the 1940s to the present, as reflected in a recent special edition of *Cultural Anthropology* on the theme of 'Anthropology Electric' (see Refs. [48,49]). A further special issue of *Anthropological Quarterly* in 2014, also edited by Boyer, examined how climate and energy have created new objects of policy and forms of 'energopower' [50], and another collection in *Anthropology Today,* also in 2014, sought to address the broader challenges to the discipline [51].

Ethnographies of fossil fuel dependency have explored ways of understanding the fossil fuel lock-in, beyond the socio-technical focus on 'energy transition'. In the process they aim to captures the holistic picture needed to apprehend the challenges posed by decarbonisation. Huber for instance focuses on the social logic of oil dependency, illustrating how it enables ideologies of individualism and entrepreneurship in the US [52]. Winther used the experience of accessing electricity for the first time to reflect on the underlying effects of electric power on societies [53]. Many of the seminal social and cultural studies of energy are brought together in 'The Energy Reader' [54], which demonstrates the historical, social, political and cultural aspects, and the logic of 'energy choices' and 'power shifts', although there is only limited discussion of climate change, and where it is addressed it is done so through an energy reduction rather than energy transformation lens (see Ref. [55].

The contrasting dynamic across North and South has been an important theme. Winther's account of energy across development divides exemplifies the issues [53]. There are country-level ethnographies from the South, including for instance a study of electricity and developmentalism in India [56]. Within localities there are direct ethnographic investigations of the effects of climate policy-making, highlighting the gulf between the recognised crisis and action on the ground. In this, ethnographers have played a key role in politicizing the socio-cultural impacts of climate policies, including of the effects of offset regimes aimed at 'carbon sinks', such as the proposed United

Nations 'Reducing Emissions from Deforestation and Forest Degradation' scheme [57,58].

In terms of global climate policy-making, Foyer et al have studied what they characterise as a global 'climatization' process, in the aftermath of COP 21, where they find multiple fields of policy-making being progressively 'climatized' [6]. Their ethnography of climate negotiations reveals how this uneven process has proceeded, making an important point that the process of globalising the climate problem operates sector-by sector, across social fields, rather than spatially. This reflects the logic of the climate crisis, and thereby its governance regimes, as a process that envelops successive sectors in its wake (though leaving the fossil fuel sector largely untouched). From this perspective the climate crisis is an already-globalised crisis, which, as it intensifies, spills over into more and more realms of policy.

Foyer et al argue this process produces a 'climatization of the world', where actors present particular issues that were formerly unrelated to the climate regime through a 'climatic lens'. They go further and suggest climate has become a pole of attraction, crossing science and society, playing a 'totemic' role similar to that of atomic energy or globalisation in the past, as a 'a metaphor for the world's most serious problems and predicaments' (2017:8). The tensions between discursive 'climatization' and the banal continued commitment to expanded fossil fuel use, consumerism and financial growth, from the most macro global scale to the most micro modes of livelihood, serve to undermine state legitimacy, disrupt social lifeand generate new lines of social antagonism. As the expanding realms of climate discourse are rejected by the recalcitrant and almost everywhere are contradicted by practice, new political conflicts open up, defining new questions of responsibility, agency and capacity, as a new ethics of climate life.

Stefan Aykut has characterised this disjuncture as a 'schism of reality', and as a precursor to major crises of democratic legitimacy [59]. Revealingly, he summarises the confrontation between fantasy and reality as follows:

> The first is a sphere of UN climate governance built on the imaginary of centralized global action and consensual 'management' of a global problem. The other is an external reality characterised by the globalisation of resource-intensive Western lifestyles, unbridled exploitation of fossil fuel resources, fierce economic competition between states, and a remilitarization of international relations (2016:323).

The disjuncture is also revealed in ethnographies of carbon policy. Lippert, for instance, conducted institutional ethnography, focused on the 'corporate social responsibility' unit of a large company engaged in carbon offsets. His ethnographies of the 'carbon accounting process' draw a strong distinction between 'formal realities' centred on an unobtainable imaginary (or fantasy), and 'situated realities', reflecting corporate interests and practices on the ground [60]. Davidson and Gismondi's account of corporate storytelling by Alberta's tar-sands industry likewise focuses on how industry narratives have gained leverage, resonating with dominant practices, creating 'encapsulated storylines' that ensure 'the flow of discourse is directed away from contradictions that might warrant deep political and social changes' ([61]: 26). Over the barricades, there are multiplying studies of climate action social movements and campaigns, including an 'auto-ethnography' of the fossil-free divestment campaign in US Universities [62], an event-focused study of differing political mobilisations for climate justice [63], and our long-form account of direct action climate campaigning in Australia [7]. A particularly powerful early example, that anticipated debates about climate ethnography, is Sawyer's study of how Indigenous peoples contested neoliberal extractivism in Ecuador [64].

6. Emerging sites and strategies

Recent ethnographic engagement with the issue of climate change

bears-out the struggle to bridge abstracted climate science and 'lived' socio-cultural contexts. The AAA Taskforce Report cited above, framed this in terms of the need to 'downscale' global climate knowledge, a process of '"ground-truthing" for global and regional models' (2014: 61). To achieve this the Report defined nine 'frontiers' for future research. Five of these reflect dominant and prevailing practice, namely to aid accuracy in climate modelling, to explore resilience, adaptation and vulnerability for 'habitability', and to address non-Western perspectives. The remaining four 'frontiers' are more exploratory, and speak much more directly to normative climate agendas, namely to address cultures of decarbonisation, alternative consumption and activism, the politics of migration, and the anthropology of climate science (2014: 70–72). These point to a different agenda of 'grounding' climate knowledges in the process of socio-political change, less on a model of 'socio-ecological systems' than on a model of 'socio-ecological relations'.

These themes can be recast as a set of distinct fields for normative climate ethnography, that reflect the passage of the climate crisis across four dimensions – impacts, causes, solutions and advocacy. In terms of impacts, there is an increasing imperative to politicise the socio-cultural effects of climate change, humanising the deeply uneven material experience of climate change via ethnographic engagement. Qualitative evidence of the human experience of climate change can serve to underpin the quantitative scientific data, and help shift the debate beyond reductionism and functionalism to address the socio-cultural dimensions of climate change and policy. Rather than addressing symptoms via adaptation or 'resilience' studies, this kind of investigation can address causes, help advance normative climate research and aim to develop more 'purposive' climate agency.

In terms of addressing the causes of climate change, ethnography can expose and materialise the continued drive to extract and burn fossil fuels under consumer capitalism, and to thereby materialise the drive for an ever-widening emissions 'window'. Ethnography can address carbon-intensive 'hotspots', which still proceed as sites of accumulation in spite of initiatives to halt global warming. There may be engagement with agents at various levels: place-based and trans-local or transnational, with studies and centred on workplaces or fossil-fuel dependent communities. Contestation against extractivism may be analysed at mining or drilling sites, and at power stations, but also in other contexts, such as in financial or legal decision-making.

Ethnography can also address the process of producing solutions to climate crisis under consumer capitalism. Studies may investigate the material process of producing solutions, across various players, critiquing socio-political aspects of technological and organisational 'carbon management' in terms of the social relations they produce or sustain. They may investigate dominant and emerging normative agendas and social imaginaries concerning climate change and climate justice. Examples may include commitments to 'geoengineering', 'nature-based' solutions centred on carbon sinks, the social relations of renewable energy, and new modes of living, including alternative consumption and de-growth movements or practices.

There is also wide scope for ethnography to contribute to debates about advocacy and to creating vehicles for the production of climate agency, to address its impacts on the changing logic of accumulation. There may be investigations of how the international political 'regime', encompassing political players, ideologies, institutions and policies, responds to climate change. Studies may address both informal and formal dimensions, and modes of contestation as well as legitimation. Here we can envisage comparative research into climate policy network, and into climate-focused media and communication strategies, including social movement strategies for mobilisation and for symbolic or ideological effect.

Across these four broad areas of intervention in climate and energy research, ethnography has wide scope to contribute. Many of these aspects, as noted here, are already 'under exploration', and much may follow from the research agendas already in place. Taken together these

aspects constitute a broad and expansive (hence not exhaustive) agenda for climate ethnography, which takes us well beyond a more limited preoccupation with local 'adaptation' or 'resilience'. The imperative to respond to the multiple domains in which the 'human dimensions of climate change' have emerged, is forcing ethnography into new fields of climate politics and policy. In the process it may over time come to take up a critical role in the ongoing (urgent) task to materialise climate agency.

7. Conclusions: seeing the wood?

As argued here, ethnography can help advance the search of climate agency. This normative project of 'climate ethnography' focuses on manifesting and acting on 'social-ecological relations', rather than on charting 'socio-ecological systems'. Interpretations of climate crisis from a systems approach can produce functionalist accounts that interpret human action as a response to environmental triggers. The crisis, though, is much more relational and reciprocal: climate change is both produced by society, and transforms society. In terms of causes it is a product of existing capitalist social relations that privilege growth and accumulation on the basis of fossil fuels; in terms of impacts, its logic reflects the gross inequalities resulting from accumulation, itself enabled by fossil fuel appropriation. What may seem a tautology reflects the totality of climate and social relations, where the carbon cycle as a biophysical process, is literally remade in the image of capitalist society. In this context, sites for agency become correlated, allowing greater strategic purchase.

From this perspective, climate ethnography can be conceptualised as a project to materialise climate change under capitalism, and generate climate social imaginaries, hand-in-hand with climate agency. By engaging and framing material sites, ethnographers can concretise climate change in the socio-cultural process (rather than impose or impute climate framing). Ethnographic research holds the possibility of charting more encompassing perspectives, driven by the 'foreshadowed' dilemmas, problems and possibilities of climate change. Normative climate ethnography of this sort can have widespread democratic potential to engage with publics and help produce 'purposive' climate agency in the unfolding crisis. Ethnography clearly does not hold all the answers for climate and energy research, and arguably is best used in conjunction with other methods, as part of inter-disciplinary collaborations. But there are limits to studies that materialise specific aspects climate change, whether via a focus on impacts, causes, solutions or vehicles, and ethnography can offer more 'holistic' visions for an integrative social imaginary beyond fragmented aspects. In this vein, Baer and Singer emphasise ethnography in the tradition of 'critical political ecology', which seeks to expose social relations of climate change and engage directly with questions of agency. This kind of approach, they argue, can capture the broader perspective, addressing what creates 'climate-related knowledge', covering the diversity of impacts, and addressing the cultural dynamics and possibilities of emissions reduction [65]. By engaging with this normative imagination, and especially by working with those struggling to project an effective vision, ethnography can help offer the required structural scale and scope to address the capitalocene and its ecological contradictions.

Acknowledgements

References

[1] M. Mastrandrea, et al., Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties, Intergovernmental Panel on Climate Change (IPCC), Bonn, 2010.

[2] D. Chakrabarty, The climate of history: four theses, Crit. Inq. 35 (2008) 197–222.

[3] E. Swyngedouw, Apocalypse forever? Post-political populism and the spectre of climate change, Theory Cult. Soc. 27 (2–3) (2010) 213–232.

[4] N. Klien, The Shock Doctrine: the Rise of Disaster Capitalism, Random House, Toronto, 2007.

[5] J. Goodman, Social movement participation and climate change communication, in: M. Schäfer (Ed.), Oxford Research Encyclopedia of Climate Science, Oxford University Press, Oxford, 2017, pp. 1–33.

[6] J. Foyer, S. Aykut, E. Morena, et al., Introduction: COP21 and the "climatisation" of global debates, in: Fyyer (Ed.), Globalising the Climate. COP21 and the Climatisation of Global Debates, Routledge, New York, 2017, pp. 1–18.

[7] S. Rosewarne, J. Goodman, R. Pearse, Climate Upsurge: the Ethnography of Climate Movement, Routledge, London, 2014.

[8] T. Morton, 'Beyond the coal rush', 3-part series: 1. The marchof coal; 2. The age of coal; 3. The transition begins, 3 x 50'00 Radio Documentary Series, The Science Show, ABC Radio, 2016 27 August, 3 September, 10 September 2016.

[9] T. Morton, M. Waltz, 'Brennpunkte im Kampf um die Kohle' (Focal points in the struggle for coal), 50'00 Radio Documentary, broadcast Deutschandfunk, Deutschlandradio, 2016 18 November 2016.

[10] J. Goodman, J. Marshall, R. Pearse, Coal, climate and developmentalism: comparative perspectives', special issue introduction, Energy Policy 99 (2016) 180–183.

[11] J. Goodman, D. Ghosh, T. Morton, Climate technology and climate justice: energy transitions in Germany, India and Australia, in: T. Jafry, M. Mikulewicz (Eds.), Handbook on Climate Justice, Routledge, London, 2018.

[12] J. Moore, Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism, PM Press, Oakland, 2016.

[13] T. Mitchell, Carbon Democracy: Political Power in the Age of Oil, Verso, London, 2011.

[14] M. Carney, Breaking the tragedy of the horizon – climate change and financial stability, Governor of the Bank of England, Speech to Lloyds of London, (2015) 29 September.

[15] M. Hulme, Mapping climate knowledge: an editorial essay, Wiley Interdiscip. Rev. Clim. Change 1 (1) (2010) 1–8.

[16] U. Beck, Emancipatory catastrophism: what does it mean to climate change and risk society? Curr. Sociol. 63 (1) (2015) 75–88.

[17] J. Moore, Capitalism in the Web of Life: Ecology and the Accumulation of Capital, Verso, London, 2015.

[18] M. Bloch, Anthropology is an odd subject: studying from the outside and from the inside, Hau J. Ethnogr. Theory 7 (1) (2017) 33–43.

[19] C. Geertz, The Interpretation of Cultures, Basic Books, New York, 1973.

[20] M. Hammersley, P. Atkinson, Ethnography: Principles in Practice, 2nd edition, Routledge, London, 1995, pp. 1–22.

[21] J. Juris, Conclusion: the possibilities, limits and relevance of engaged ethnography, in: J. Juris, A. Khasnabish (Eds.), Insurgent Encounters: Transnational Activism, Ethnography, and the Political, Duke University Press, Durham, N.C, 2013, pp. 367–390.

[22] C. Mills, Wright, The Sociological Imagination, Oxford University Press, New York, 1959.

[23] A. Salleh, J. Goodman, H. Hosseini, From sociological imagination to "ecological imagination": another future is possible, in: J. Marshall, L. Connor (Eds.), Environmental Change and the World's Futures: Ecologies, Ontologies, Mythologies, Routledge, London, 2016.

[24] J. Magistro, C. Roncoli, Anthropological perspectives and policy implications of climate change research, Clim. Res. 19 (2001) 91–96.

[25] S. Crate, Climate and culture: anthropology in the era of contemporary climate change, Annu. Rev. Anthropol. 40 (2011) 175–194.

[26] C. Roncoli, T. Crane, B. Orlove, Fielding climate change in cultural anthropology, in: S. Crate, M. Nuttall (Eds.), Anthropology and Climate Change: From Encounters to Actions, Routledge, New York, 2009, pp. 87–116.

[27] J. Nielsen, S. D'haen, Asking about climate change: reflections on methodology in qualitative climate change research published in Global Environmental Change since 2000, Glob. Environ. Change 24 (2013) 402–409.

[28] E. Marino, Fierce Climate, Sacred Ground: an Ethnography of Climate Change in Shishmaref, Alaska, University of Alaska Press, Fairbanks, 2015.

[29] L. Artue, D. Hillhorst, Everyday realities of climate change adaptation in Mozambique, Glob. Environ. Change 22 (2010) 529–536.

[30] F. Weisser, M. Bollig, M. Doevenspeck, D. Müller-Mahn, Translating the "adaptation to climate change" paradigm: the politics of a travelling idea in Africa, Geogr. J. 180 (2014) 111–119.

[31] R. Cassidy, Lives with others: climate change and human-animal relations, Annu. Rev. Anthropol. 41 (2012) 21–36.

[32] S. Crate, M. Nuttall (Eds.), Anthropology and Climate Change: From Encounters to Actions, Routledge, New York, 2009.

[33] A. Peace, L. Connor, D. Trigger, Environmentalism, culture, ethnography, Oceania 82 (3) (2012) 217–227.

[34] K. Norgaard, Living in Denial: Climate Change, Emotions, and Everyday Life, MIT Press, Cambridge, 2011.

[35] H. Greschke, J. Tischler, Introduction: grounding global climate change, in: H. Greschke, J. Tischler (Eds.), Grounding Global Climate Change: Contributions from the Social and Cultural Sciences, Springer, Dordrecht, 2015.

[36] J. Barnes, et al., Contribution of anthropology to the study of climate change, Nat. Clim. Change 3 (June) (2013).

[37] E. Cameron, Securing indigenous politics: a critique of the vulnerability and adaptation approach to the human dimensions of climate change in the Canadian Arctic, Glob. Environ. Change 22 (2012) 103–114.

[38] P. Rudiak-Gould, Climate change and accusation: global warming and local blame

in a small island state, Curr. Anthropol. 55 (4) (2014) 365–375.

[39] T. Eriksen, E. Schober, Knowledge and Power in an Overheated World, University of Oslo, Oslo, 2017.

[40] K. Hastrup, M. Skrydstrup (Eds.), The Social Life of Climate Change Models: Anticipating Nature, Routledge, London, 2013.

[41] T. Princen, J. Manno, P. Martin (Eds.), Ending the Fossil Fuel Era, MIT Press, Cambridge, 2014.

[42] L. Connor, Climate Change and Anthropos: Planet, People and Places, Routledge, London, 2016.

[43] S. Strauss, S. Rupp, T. Love (Eds.), Cultures of Energy: Power, Practices, Technologies, Routledge, London, 2013.

[44] J. Smith, M. High, Exploring the anthropology of energy: ethnography, energy and ethics, Energy Res. Soc. Sci. 30 (2017) 1–6.

[45] A. Henning, Climate change and energy use, Anthropol. Today 21 (3) (2005) 8–12.

[46] D. Himmelfarb, J. Schelhas, S. Hitchner, C. Gaither, K. Dunbar, J. Brosius, et al., Perceptions of and attitudes toward climate change in the Southeastern United States, in: W. Filho (Ed.), International Perspectives on Climate Change, Springer, New York, 2014, pp. 287–299.

[47] C. Callison, How Climate Change Comes to Matter: The Communal Life of Facts, Duke University Press, Durham, N.C, 2014.

[48] D. Boyer, Anthropology electric, Cult. Anthropol. 30 (4) (2015) 31–539.

[49] T. Winther, H. Wilhite, Tentacles of modernity: why electricity needs anthropology, Cult. Anthropol. 30 (4) (2015) 569–577.

[50] D. Boyer, Energopower: an introduction, Anthropol. Q. 87 (2) (2014) 309–333.

[51] J. Whittington, What does climate change demand of anthropology? Anthropol. Today 21 (3) (2014) 1–8.

[52] M. Huber, Lifeblood: Oil, Freedom and the Forces of Capital, University of Minnesota Press, Minneapolis, 2013.

[53] T. Winther, The Impact of Electricity: Development, Desires and Dilemmas, Berghahn Books, New York, 2010.

[54] L. Nader, L. Cesarino, C. Hebdon, The Energy Reader, Wiley-Blackwell, Chichester, UK, 2014.

[55] H. Wilhite, et al., Energy consumption as cultural practice: implications for the theory and policy of sustainable energy use, in: L. Nader (Ed.), The Energy Reader, Wiley-Blackwell, Chichester, UK, 2014, pp. 60–72.

[56] A. Gupta, An anthropology of electricity from the Global South, Cult. Anthropol. 30 (4) (2015) 555–568.

[57] S. Howell, "No rights - no REDD": some implications of a turn towards co-benefits, Forum Dev. Stud. 41 (2) (2014) 253–272.

[58] K. Hastrup, Divide and rule: nature and society in a global forest programme, in: K. Hastrup (Ed.), Anthropology and Nature, Routledge, London, 2014, pp. 147–165.

[59] S. Aykut, Taking a wider view on climate governance: moving beyond the "iceberg", the "elephant", and the "forest", WIREs Clim. Change 7 (3) (2016) 318–328.

[60] I. Lippert, Corporate carbon accounting as techno-political practice, in: S. Paladino, S. Fiske (Eds.), The Carbon Fix: Forest Carbon, Social Justice, and Environmental Governance, Routledge, New York, 2017, pp. 107–119.

[61] D. Davidson, M. Gismondi, Challenging Legitimacy at the Precipice of Energy Calamity, Springer, New York, 2011.

[62] E. Bratman, K. Brunette, D. Shelly, S. Nicholson, Justice is the goal: divestment as climate change resistance, J. Environ. Stud. Sci. 6 (2016) 677–690.

[63] R. Reitan, S. Gibson, Climate change or social change? Environmental and leftist praxis and participatory action research, Globalizations 9 (3) (2012) 395–410.

[64] S. Sawyer, Crude Chronicles: Indigenous Politics, Multinational Oil, and Neoliberalism in Ecuador, Duke University Press, Durham, NC, 2004.

[65] H. Baer, M. Singer, The Anthropology of Climate Change: an Integrated Critical Perspective, Routledge, London, 2014.

[66] P. Rudiak-Gould, Climate change and anthropology: the importance of reception studies, Anthropol. Today 27 (2) (2009) 9–12.

[67] J. Goodman, From global justice to climate justice? Justice ecologism under global warming, New Political Sci. 31 (2) (2009) 499–515.

[68] S. Fiske, S. Crate, C. Crumley, K. Galvin, H. Lazrus, G. Luber, L. Lucero, A. Oliver-Smith, B. Orlove, S. Strauss, R. Wolk (Eds.), Final Report of the AAA Global Climate Change Task Force, American Anthropological Association, Arlington, VA, 2014.